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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/083,184	02/26/2002	Kenneth R. Schroll	10001-29977	5110

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EXAMINER

PETKOVSEK, DANIEL J

ART UNIT PAPER NUMBER

2874

DATE MAILED: 07/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/083,184

Applicant(s)

SCHROLL ET AL.

Examiner

Daniel J Petkovsek

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on April 22, 2003 (amendment A).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 and 18-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-14, 18, and 38-40 is/are allowed.
- 6) ☒ Claim(s) 1, 4-6, 8, 10, 19-25, 27, 28, 31-33, 36 and 37 is/are rejected.
- 7) ☒ Claim(s) 2, 3, 7, 9, 11, 26, 29, 30, 34 and 35 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 2/26/2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

This office action is in response to the amendment filed on April 22, 2003. In accordance with the amendment, claims 15-17 have been canceled, and new claims 19-40 have been added. The amendment to the specification is acknowledged. It is noted that formal drawings will be required when the application is allowed.

Allowable Subject Matter

1. Claims 12-14, 18, and 38-40 are allowed. The relevant prior art does not teach or reasonably suggest that the prism component is formed totally, or at least from one section, of coreless optical fiber.
2. Claims 2, 3, 7, 9, 11, 26, 29, 30 and 34-35 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The relevant prior art does not teach or reasonably suggest that the substrate is made from a precision v-groove chip, or formed from nickel using a LIGA process (claims 2, 3, and 26). The relevant prior art does not teach or reasonably suggest that the prism is molded in place on the substrate from an index-matched adhesive (claims 7 and 11, and 35). The relevant prior art does not teach or reasonably suggest a section of coreless optical fiber coupled within the apparatus (claims 29-30). The relevant prior art does not teach or reasonably suggest (in method steps) bonding the collimators to the prism using an index matched adhesive (claims 9 and 34).

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Doyle U.S.P. No. 6,009,219.

Doyle U.S.P. No. 6,009,219 teaches (Fig. 5, column 5 lines 35-57) an apparatus comprising of the following: a first optical fiber 43 having a first end, a first lens 45 optically connected to first end of fiber 43, a second optical fiber 53 having a first end, a second lens 55 optically connected to first end of fiber 53, a retro-reflective switching element 220 to create a U-turn in the collimated optical signal 48 traveling from fiber 43 to fiber 53, and a base holding member 37 connected to retro-reflective device 220 to provide optically connected alignment of first lens 45 and second lens 55, which clearly, fully meets Applicant's claimed limitations.

5. Claims 1, 8, 10, 19-25, 27-28, 31-33, and 36-37 are rejected under 35 U.S.C. 102(e) as being anticipated by Chen et al. US 2003/0081885 A1.

Chen et al. US 2003/0081885 A1 teaches (Figs. 1, 3, 5, claim 1) an apparatus 99 comprising: a first optical fiber 15; a first collimator 17 optically connected to the first fiber 15; a second optical fiber 16; a second collimator 18 optically connected to the second fiber 16; a prism 22 optically connected to the two collimators 17 and 18; and a substrate 31 securing the prism 22 in optical alignment with collimators 17 and 18. Regarding claim 8, the method is inherent from the device 99 to ensure proper alignment between the optical components.

Regarding claim 10, the 1st and 2nd collimators are formed into the extension 32 of the substrate 31.

Regarding claims 19-25, the substrate 31 (with extension 32) comprises two channels and is adapted to receive the optical components/signals in alignment with each other. Each adjacent channel receives the attached fibers/collimators and optically couples them to the prism.

Regarding claims 27-28, an adhesive (inherently index-matched) is used between surfaces 151 and 171 to further optically couple the fiber to the collimator (which eventually couples to the prism) ([0030]).

Regarding claims 31-33 and 36-37, fiber 15 is placed in the optical channel, the other fiber 16 is coupled onto the substrate extension 32 (in a separate optical channel), the prism 22 is placed onto the substrate 31, and coupling exists between the elements.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 1, and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hunter et al. U.S.P. No. 6,137,933.

Hunter et al. U.S.P. No. 6,137,933 teach (Fig. 2, column 5 line 66 through column 6 line 42) a device for coupling optical signals in a U-turn fashion comprising the following: an optical fiber 42, a first lens 30 connected to first end of fiber 42, a second set of fiber(s) 36, a second lens 24 connected to first end of fiber(s) 36, and a retro-reflecting element 18 coupling the

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optical signals between elements 12 and 14. Hunter et al. '933 does not explicitly teach a substrate securing the retro-reflective element 18 in optical alignment with the first and second lenses 24 and 30. Although lenses 12 and 14 are not explicitly referenced to as substrates, it would have been obvious at the time the invention was made to a person having ordinary skill in the art that the device 10 holds the retro-reflective element 18 in optical alignment with the fibers and lenses, and there would be no need for an additional substrate, since the prism is already held in alignment. The large planar surfaces for device assembly, alignment, and integration exist to secure the retro-reflective element in place, acting as a substrate to be optically bonded to. This prism region of 18 is properly aligned (and held) to the collimating regions 12 and 14 and fibers 36 and 42 of device 10. Regarding claims 5-6, an optical cement is used to affix collimating regions to the prism regions (column 6, lines 17-18).

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al. US 2003/0081885 A1.

Chen et al. US 2003/0081885 A1 teaches (Figs. 1, 3, 5; claim 1) an apparatus 99 comprising: a first optical fiber 15; a first collimator 17 optically connected to the first fiber 15; a second optical fiber 16; a second collimator 18 optically connected to the second fiber 16; a prism 22 optically connected to the two collimators 17 and 18; and a substrate 31 securing the prism 22 in optical alignment with collimators 17 and 18. Chen et al. '885 does not explicitly teach that substrate 31 is formed from precision molded plastic. Since it is well known in the art to use plastic for the formation of substrates/bases, it would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to use well-known plastics, such as precision molded plastic.

Inventorship

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

Applicant's arguments filed April 22, 2003, have been fully considered. Claims 15-17 have been canceled. New claims 19-40 have been added.

Applicant traverses the 35 U.S.C. 102 (b) rejection of claim 1 by asserting that the Doyle '219 reference does not connect the collimators to the prism. Doyle '219 optically connects the collimators to the prism, as is fully addressed above. The argument is not persuasive.

Applicant traverses the 35 U.S.C. 103 (a) rejection of claims 1-18 to Hunter et al. '933 by asserting that Hunter does not make obvious the structure and alignment of the optical U-turn device. Hunter et al. '933 meets the claimed limitation of apparatus claims 1, and 5-6, as fully

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addressed above. The rejections to method claims 8-13, and 18 have been withdrawn, as the Hunter reference does not explicitly teach or reasonably suggest the specific method steps as claimed. The rejections to claims 2-4, 7, and 14 are withdrawn as the Hunter reference does not explicitly teach or reasonably suggest these limitations.

New rejections have been made to claims 1, 4, 8, 10, 19-25, 27-28, 31-33, and 36-37 to Chen et al. '855. These rejections have been fully addressed above.

10. This action is made **NON-FINAL**, since new rejections have been made under 35 U.S.C. 102 (e) and 35 U.S.C. 103 (a) to Chen et al. '855.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure, with respect to the state of the art of optical back-reflecting devices:

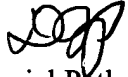
PTO-892 form references B-E.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J Petkovsek whose telephone number is (703) 305-6919. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 872-9321.



Daniel Petkovsek
July 2, 2003



Brian Healy
Primary Examiner